

ABSTRACT

Systems and methods according to the present invention are described for adjusting the number of taps in an adaptive equalizer over time as the rate of change of a communications channel varies. The number of taps or “equalizer length” is adjusted based on an estimate of the Doppler frequency between the devices communicating over a channel. The Doppler frequency is reflective of the rate of change of the communications channel. Greater Doppler frequencies indicate a more quickly varying channel, and vice versa. It is therefore desirable to change the equalizer length (by adding or dropping taps) based on a measurement of the Doppler frequency. Equalizer length is increased as the Doppler frequency decreases. Conversely, equalizer length is decreased as the Doppler frequency increases. This enables the equalizer to achieve a better compromise between the competing goals of adaptation speed (less taps) and ISI reduction (more taps).